

WHAT IS CLAIMED IS:

1. A card-flipping device for turning a card over in a card printer, comprising:

a card-carrier unit for transporting the card in a vertical direction, the unit slidably attached to a vertical guide rail mounted to the frame of the printer, and the unit including a pair of rotatable flip guides for holding the card;

a motor drive means coupled to the card-carrier unit for moving the unit in ascending and descending directions along the vertical guide rail; and

an actuator assembly, comprising:

(i) a rotatable cam arm connected to the card-carrier unit, the arm being capable of moving in ascending and descending directions with the card-carrier unit,

(ii) a spring biasing means,

(iii) a pair of sliding flip stop members, the members being in a first position, wherein the ascending cam arm engages a flip stop member and a force exerted by a spring means causes the cam arm to rotate 180 degrees, thereby turning the card over; and

(iv) a pair of sliding flip stop actuator levers connected to the flip stop members, wherein the descending cam arm of the card-carrier unit engages an actuator lever, thereby causing the flip stop members to slide from the first position to a second position.

2. The card-flipping device of claim 1, wherein the card-carrier unit has a U-shaped structure comprising an upper wall portion and two extending sidewall portions.
3. The card-flipping device of claim 1, wherein the rotatable flip guides include an inner flip guide and an outer flip guide, the inner flip guide being connected to the cam arm, and the outer flip guide being connected to a shaft.
4. The card-flipping device of claim 1, wherein the rotatable flip guides include an azimuth adjuster that engages the inner flip guide and slides upwardly and downwardly within a vertical adjuster channel.
5. The card-flipping device of claim 1, wherein each rotatable flip guide comprises a first elongated side frame member and a second elongated side frame member that are spaced apart to define a card-retaining channel there between,

the first side frame member having an inner edge with a substantially concave central portion, and the second side frame member having an inner edge with a substantially convex central portion for gripping the card within the card-retaining channel.
6. The card-flipping device of claim 1, wherein the printer is a thermal card printer.

7. A thermal card printer apparatus, comprising:

- a) a print station for thermally printing indicia on a surface of a card substrate;
- b) a linear transport system for transporting the card beneath the print station, the

linear transport system comprising:

- (i) a carriage for receiving the card, wherein the surface of the card to be printed faces upwards in the carriage;
- (ii) a linear guide means for guiding the carriage beneath the print means;
- and
- (iii) a reversible drive means for driving the carriage along the linear guide means; and

- c) a card-flipping device for turning the card over, the card-flipping device

comprising:

a card-carrier unit for transporting the card in a vertical direction, the unit slidably attached to a vertical guide rail mounted to the frame of the printer, and the unit including a pair of rotatable flip guides for holding the card;

a motor drive means coupled to the card-carrier unit for moving the unit in ascending and descending directions along the vertical guide rail; and

an actuator assembly, comprising:

- (i) a rotatable cam arm connected to the card-carrier unit, the arm being capable of moving in ascending and descending directions with the card-carrier unit,

(ii) a spring biasing means,

(iii) a pair of sliding flip stop members, the members being in a first position, wherein the ascending cam arm engages a flip stop member and a force exerted by a spring means causes the cam arm to rotate 180 degrees, thereby turning the card over; and

(iv) a pair of sliding flip stop actuator levers connected to the flip stop members, wherein the descending cam arm of the card-carrier unit engages an actuator lever, thereby causing the flip stop members to slide from the first position to a second position.

8. The thermal card printer apparatus of claim 7, further comprising a card-cleaning assembly for cleaning debris from a surface of the card.

9. The thermal card printer apparatus of claim 7, further comprising a laminating assembly for laminating a film to a surface of the card.